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AN ANSWER TO THE Obſervations of Mr. GEACH, AND TO THE Curſory REMARKS of Mr. ALCOCK, ON Dr. BAKER's ESSAY ON THE ENDEMIAL COLIC of DEVONSHIRE.

In a LETTER from Dr. SAUNDERS to Dr. BAKER.

Non perſuadebis, etiamſi perſuaſeris.

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SIR,

I HAVE taken the earlieſt opportunity of peruſing a Pamphlet, written profeſſedly in oppoſition to the opinion, which is maintained in your Eſſay, concerning the cauſe of the endemial colic of Devonſhire, by a formidable confederacy of Authors, Meſſrs. GEACH, and ALCOCK; the former a Surgeon reſiding in the neighbourhood of Dr. HUXHAM, already well known to the medical world, on account of his new and curious *Obſervations on the Diſeaſes of the Eye*; the latter a Reverend Eccleſiaſtic, whoſe ſtudies, as it may be preſumed, have had but a ſmall connection with medical ſubjects, and who has the merit of having been one of the firſt champions who lately appeared againſt the ſupreme authority in the cauſe of Devonſhire Cyder. The former appears to me in the character of one who is deſirous of neglecting no opportunity of paying every mark of his reſpect and adulation to *a great name*; for his portion of this curious compound, contains little, very little more,

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than a dull, unintereſting, uninſtructive repetition of a vain unſubſtantial theory, together with an addition of much falſe reaſoning, from his own private ſtock, and an abundance of miſrepreſentation.

Whether the latter has taken up his pen, upon a patriotic or a ſelfiſh principle, it cannot be eaſily determined; for although he appears to be a maker of cyder, and moſt probably is a dealer in that commodity, he muſt be allowed to have ſome ſhare of public ſpirit, who ſeems to be as zealous "*to get your doctrine ſpeedily refuted,*" as he lately was "*to get the cyder act repealed.*"

I will firſt examine the production of Mr. GEACH, after having premiſed, that I have very ſeldom met with obſervations more uncandid, or arguments leſs concluſive, than what here occur.

Indeed this man's arguments do every where appear to me to reſemble thoſe ſlender incorporeal beings, thoſe *tenues ſine corpore vitæ*, which the poet ſuppoſes to flutter about in the other world, *cava ſub imagine formæ.*

They

They are of too delicate and ethereal a ſtructure, to bear the leaſt touch, and he who makes an attack on them is in the caſe of a man, who draws his ſword againſt a ſhadow.

Irruit & fruſtra ferro diverberat umbram.

"*Is it not more probable*," ſays this acute reaſoner, *that this colic is owing, in part at leaſt, to a predominant acid, ſince other acids will occaſion the ſame ſymptoms?*" How does this poſition appear to be true? Mr. GEACH proves his point in a moſt compendious manner, thus: "*ſuch acid liquors undergo a new fermentation in the bowels; much hot elaſtic air is thus produced, cauſing all theſe ſpaſms and colics.*" The ſubſtance of this argument is, that ſpaſms and colics are cauſed by acids, becauſe acids cauſe them. But it is undoubtedly true, that in the Weſt Indies and America, they truſt to the acids of lemons and limes, not only as the cure of, but as the preſervative from the dry belly-ach.

It were to be wiſhed that our ideas were not ſo *groſsly* undetermined, with regard to the *groſs* tartar, ſo much talked of as the cauſe of

this colic. No fruits in their unfermented ſtate contain tartar of any kind; it is generated only by fermentation; and when properly ſeparated from its inflammable matter, in the form of cream of tartar, as you juſtly obſerve, it becomes one of our ſafeſt and gentleſt purgatives, and extremely well adapted to the cure of this diſeaſe.

Here follows a curious obſervation. "*Air-bubbles are apt to get into all pipes and tubes that carry any fluid; therefore no wonder if air-bubbles get into the pipes and tubes of the human body.*"

Another obſervation, as curious as the former. "*It is probable that thoſe ſevere pains, felt in the extremities, are for the moſt part flatulent; ſince by rubbing the affected parts, the wind is often removed or expelled:*" From which of the extremities has this gentleman practiſed the art of expelling wind by rubbing?

It is known by a common experiment made in the mechanical ſchools of philoſophy, that water will tranſude through ſubſtances which are impermeable to air. No air can enter the

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human body, or exiſt there, in a ſtate of elaſticity, nor can any thing reſtore elaſticity to air, in the blood, but the taking off external preſſure.

But, in caſe the exiſtence of internal air-bubbles, in the veſſels of the human body, ſhould be controverted, Mr. GEACH has afterwards recourſe to the external air, and he contends, that "*the diſeaſe muſt partly be owing to ſome peculiar diſpoſition of the atmoſphere.*" What is this, but an explanation of an *ignotum per ignotius?*

The ſtate of the atmoſphere has an undoubted influence on the human body; but I apprehend, an *untoward diſpoſition* of the air, has often been unjuſtly condemned, as the ſource of diſeaſes, in the production of which it has not been guilty. But, it is too common a fault of authors thus to build hypothetical caſtles in the air. They are apt to deſpiſe truth when it is near at hand, and can be obtained on eaſy terms; and are particularly delighted with the contemplation of objects, which are difficult of acceſs, and placed at too great

great a diſtance to admit of perfect and diſtinct viſion.

Having now examined how far air has been proved to be productive of this colic, let us next ſee how ſatisfactory Mr. GEACH accounts for it from vitiated bile.

If the diſeaſe, according to Mr. GEACH, depends "*on the bile's being exalted by heat*;" ought it not to be more ſevere in warm autumns? but he himſelf ſays, in page 4. that "*warm autumns are leſs productive of this diſeaſe than cold and inclement ſeaſons.*" This gentleman further tells us, "*that the bile exalted by heat produces porraceous vomitings, ſo corroſive as to excoriate the mouth; that in conſequence of this fluid, wind and ſpaſms are engendered, which bring on an obſtinate coſtiveneſs*;" yet in the very next page he tells us, "*that warm autumns,*" which according to his own ſyſtem ought to be moſt effectual in exalting the bile, "*produce Diarrhœas and Choleras; whereas in the colder ſeaſons, obſtinate conſtipations and rheumatiſms prevail.*" A very conſiſtent doctrine!

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If the porraceous bile be ſo acrid, as Mr. GEACH repreſents it, how comes it to paſs, that an obſtinate coſtiveneſs is the conſequence? would not a contrary diſpoſition of the bowels naturally be expected from ſo acrimonious a fluid?

In another part of this work we find it aſſerted, that, "*bile thickned by the intemperate uſe of acids, loſes its ſaponaceous quality, and becomes ſo corroſive as even to fret metals.*" Is then the bile more corroſive, becauſe it is become thicker? Unfortunately for Mr. GEACH, he has here contradicted Dr. HUXHAM, who, in his treatiſe on the Devonſhire colic, p. 22. has informed us, that, "*when the bile is mixed with too much acid, its powers are deſtroyed, it is rendered quite inert, and turned almoſt into a coagulum;*" Mr. GEACH will have a difficult taſk to explain how the ſame cauſe can render the bile more *inert*, and more *corroſive:* will he give up his own theory or that of his maſter's? What a cruel dilemma!

If the colica pictonum be produced by acids, a conſtipation of the bowels ought not to be a pathognomonic ſymptom of that diſeaſe. For

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it is proved by the experiments of Dr. RAMSAY, that acids render the bile more purgative. And in children this is ſufficiently evinced, from the uſual effect which is produced when acid prevails in the primæ viæ.

In p. 3. we read, that "*the urine and ſerum of the blood is green, and the ſweat ſour.*" The exiſtence of acid in the blood is by no means proved by any one. VAN SWIETEN ſpeaks of acid ſweats attending miliary eruptions; but in this he only refers to the ſenſe of ſmelling, a guide extremely fallacious; and that acid ſweats, as Mr. GEACH ſays, ſhould prevail in autumn, while every ſymptom of alkalious bile ſhews itſelf, is too improbable to meet with acquieſcence from any one. I wiſh he had determined this matter by his taſte, that he might have offered us ſome ſpecimens of his accuracy even in that ſenſe.

"*Ladies who drink but little cyder, and children who drink none at all, are often troubled with colic.*" This obſervation holds good all over the world; but proves nothing in the preſent caſe. For is every colic incident to ladies and

children, the colic of Poitou? Are there no pathognomonic ſymptoms which diſtinguiſh this from every other colic? Beſides, ladies of a tender habit of nerves, are known to be eaſily affected with a very ſmall quantity of lead, even when externally applied.

"*When the diſeaſe does not ſhew itſelf in ſevere colics, the patient is troubled with diarrhœa and cholera.*" Now, ſuch evacuations, generally prove critical in the colica pictonum; being attended with a ready diſcharge of the poiſon, which would otherwiſe be accumulated.

I believe no one, the author excepted, will conclude from the unimportant circumſtances here enumerated, that "*we have the ſtrongeſt reaſon to believe that this diſorder cannot proceed from lead.*"

I am ſure it has not been proved by Mr. GEACH, that, according to his firſt poſition, "*other acids devoid of all lead, taken in when new, and in larger quantities, than can be ſubdued by the vital force of the ſtomach, will occaſion the ſame ſevere ſymptoms:*"

Further, it may be obſerved, "*that warm autumns, which ripen the fruits, are leſs productive of this diſorder than cold and inclement ſeaſons.*" And Mr. ALCOCK afterwards repeats, "*the diſtemper is obſerved to rage moſt in great bearings, and cold moiſt ſeaſons.*" From the teſtimony of both, may we not conclude in favour of your opinion? For if lead by any means comes in contact with cyder, more of that poiſonous metal will be diſſolved in cold and inclement, than in mild and warm autumns; for the acidity will be greater. And hence it is eaſily ſeen why "*the colics which happen in mild and warm autumns, are hardly to be diſtinguiſhed from ordinary diarrhœas.*"

It is likewiſe ſeen why the cauſe is not *univerſally* the *ſame*, and is therefore not likely to produce the "*ſame univerſal effect.*"

In p. 5. he ſpeaks very learnedly of the "*ſulphur of fruits,*" quite a new principle, and not to be underſtood by any one, not even by himſelf. I wiſh he had brought ſome proofs of its preſence, and in what ſtate it exiſts.

Page 7. "CITOIS *calling this diſorder, novus popularis dolor colicus biliosus, hints that it was epidemical, and concludes that the bile is concerned in it.*" To be ſure if CITOIS calls this diſeaſe *popularis*, he does give a pretty broad hint, that it was epidemical; and it is certain that CITOIS, as a ſyſtematic writer, does mention the bile, as one of the internal cauſes of the diſeaſe; but I ſtrongly ſuſpect that Mr. GEACH knows no more of the treatiſe of CITOIS, than what he collected from your eſſay. Before he publiſhes another pamphlet, I adviſe him to read that author carefully; for he will find in him a great deal of matter worthy to be adopted by him. He will there find much ſaid on the *bilis atra et æruginoſa, porraceæ, peruſta & præaſſata.* He will there alſo find quotations from HIPPOCRATES and GALEN, writers, certainly infallible in their phyſiology. To be ſerious, ſome allowance may be made for an Author of the year 1617, who might think it a *crimen læſæ majeſtatis*, to dare to diſſent from the ancients. But what excuſe can we make for writers, who in the preſent improved ſtate of natural knowledge, continue to follow the ſteps of ſuch blind guides, as the ancients undoubtedly, are in

almoſt every thing relating to the animal œconomy?

What Mr. GEACH ſays of the Weſt India colic is directly contrary to truth. The Weſt Indians, inſtead of the ſtrong punch, which they formerly drank, drink it now very weak, and extremely acid. This I have received from the beſt authority.

"*The Turks make their Sherbet with a ſmall portion of acid.*" I have received an account from a perſon, who reſided in the Eaſt among the Turks many years, that their Sherbet is extremely acid. But let me caution Mr. GEACH, when he ſays that, the "*Turkiſh Sherbet differs very much from an acid fermenting juice,*" to recollect what the opinion of Dr. HUXHAM is, with reſpect to the cauſe of the dry belly-ach of the Weſt Indies, *viz.* that it ariſes from a cauſe ſimilar to that of the Devonſhire colic, *i. e.* too great a uſe of the very acid juice of lemons.

I would likewiſe aſk Mr. GEACH, whether he does not ſuppoſe that the people of Devonſhire, as well as the Turks, drink their acid liquor

liquor for *pleaſure*; and whether it is not reaſonable to imagine, that the Turks are more likely, than the Devonſhire people, to drink their liquor at a time, when the body is *over-heated by labour*.

Dr. WALL happened to ſay, that he had heard from a phyſician, that there were more lunatics in Herefordſhire, than in the adjacent counties. He does not attempt to vouch for the fact, but only ſays, that the fact, if true, may poſſibly ariſe from the quantity of cyder drank, rather than the quality. This accidental intimation is to Mr. GEACH a ſtrong confirmation that Dr. HUXHAM's aſſertion is well founded; and he triumphs in the diſcovery. But if we grant it to be an undoubted fact, that Hereford cyder brings on lunacy, will it follow that lunacy and the colic of Devonſhire are in the leaſt analogous? The effect of Devonſhire cyder is palſy, the effect of Herefordſhire cyder is lunacy; the former is a diminution or total loſs of the muſcular power, the latter is often attended with the higheſt exertion of that power, which is in that d[illegible]enerally entire and unimpaired. But I for once agree with Mr. GEACH in

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ſentiment, "*that the loſs of ſtrength is not ſo deplorable as the loſs of underſtanding.*"

This reaſoning is not confirmed "*by obſerving that children become convulſed from acids abounding in the ſtomach*;" for by the ſame reaſoning Mr. GEACH may prove, that the breeding of teeth, worms, and divers other cauſes, produce the ſame diſeaſe.

"*The rickets are undoubtedly produced by acid in the blood and juices.*" What! becauſe "*ſour milk and vinegar ſoften the cartilaginous and tender bones of infants, and ſometimes even of adults*," that is, I preſume, of dead infants, and dead adults, does it neceſſarily follow that the ſame effects will take place in the living body? No acid, as I before obſerved, is to be found in the blood; and therefore I will boldly ſay, "*that the rickets are undoubtedly*" not "*produced by acid.*"

The next paragraph gives us a new cure for the rheumatiſm, which is likewiſe aſcribed to acid. We are here taught that mild beer is an anti-acid, and that either that, or cold water, another anti-acid, [redacted] that diſorder.

In your pamphlet, you ſay, that Jockeys drink largely of vinegar; Mr. GEACH modeſtly anſwers, "*this is not probable*;" for, in his opinion, "*the moſt robuſt would ſoon find it attended with very bad conſequences.*" A very dogmatical and peremptory anſwer!

It avails nothing to prove, that girls have loſt their health by drinking vinegar, unleſs it be proved, that it has brought on this particular diſeaſe; and this may ſerve as a reply to the anſwer given by Mr. GEACH to your argument, concerning chlorotic girls. That a phyſician may have cured ſuch a patient by means of the cold bath, any body may believe; but if Dr. HUXHAM uſed no better anti-acid than *mild beer*, it will be reaſonably ſuſpected that the principal part of the cure depended on the cold bathing.

Page 12. Mr. GEACH has met with wrong information with reſpect to the people whom he calls *Danglers*. Theſe are to be found, according to my information, not in the counties of Hereford, Glouceſter, and Worceſter, but in Somerſetſhire, and in thoſe parts of Dorſetſhire, which are near Somerſet, where

where I hear the Devonſhire error of cyder-making prevails.

Dr. NOOTH aſſures me, that in Dorſetſhire, particularly on the ſide near to Somerſetſhire, the cyder-preſſes are very frequently lined with lead; and that the colica pictonum is moſt frequent in thoſe pariſhes where they uſe the moſt lead: he knows a gentleman who makes a great deal of cyder, but who uſes no lead in his utenſils; the colic of Poitou is never in that gentleman's family, although his ſervants drink large qantities of cyder.

It is likewiſe a common practice among the farmers of Dorſetſhire, to buy from the apothecaries large quantities of *Sachar. Saturni*, with which they are known to ſweeten their cyder. This I can affirm from the poſitive teſtimony of gentlemen of credit, who reſide in that county.

A French writer is quoted by you to ſhow, that Rheniſh and Moſelle wines occaſion the colic, by the means of an adulteration. The paſſage referred to in your Eſſay is as follows: *Ces vins pechent ſouvent par trop de verdeur; et les*

les marchands les ont long tems alteré avec la litarge. But Mr. GEACH attempts to prove, from the authority of this very paſſage, that Rheniſh and Moſelle wines produce the colic, by means of their acidity. In order to do this he quotes only the firſt part of the ſentence, *ces vins pechent ſouvent par trop de verdeur.* Theſe words he conſtrues thus, " *theſe wines often hurt by their too great acidity*; and he entirely drops the ſubſequent part, which puts the Author's meaning out of all poſſibility of doubt. On the ſtrength of this he triumphs; " *here we ſee that the miſchief proceeds not from adulteration but the ſourneſs.*" Every one moderately converſant with the French language, will at once ſee, that the word *pechent* is moſt erroneouſly conſtrued *hurt:* the true conſtruction of the ſentence is, *theſe wines are faulty by means of their acidity; and the merchants have long adulterated them with litharge.* Upon no better foundation than this, Mr. GEACH ventures to affirm, " *that theſe wines do in an unadulterated ſtate bring on the colic, and we need only have recourſe to* Mr. BOUVART'S *words quoted by* Dr. BAKER, *in order to prove it.*" It is curious to find afterwards that the Reverend Author of the Supplement does, with reſpect to the uſe made of this quotation,

neither *vary* nor *differ* from his *learned* friend. Indeed the *thoughts* of your two opponents do *entirely coincide* in this particular. By what name ſhall I call ſuch a criticiſm? There appears to be in it, too evident marks of ignorance, for us, to ſuſpect mere wilful miſrepreſentation; and at the ſame time there appears too evident marks of a wilful miſrepreſentation, for us, to ſuſpect only ignorance.

Page 13. You have not aſſerted that the farmers of Devonſhire uſe litharge; why are they defended againſt a charge not brought againſt them? I have however heard of a certain white powder called *pearl*, which has been thrown into cyder, and which has been ſuppoſed much more efficacious in ſweetning it, than either treacle, or burnt ſugar. And I believe, it may be truly aſſerted, that ſuch a powder, which is a ſecret, has been uſed for the purpoſe of reſtraining fermentation; and that this is not an uncommon way of improving cyder.

"*If Ceruſſe was thrown into cyder, the longer it remains there, the more impregnated would the liquor be.*" You have not ſaid that Ceruſſe was thrown into cyder. Here is another

another defence where there was no accuſation. *Neſcio quid peccati habet hæc purgatio.* Every pupil in chemiſtry knows that the acid in cyder, is the only part of it, capable of diſſolving this poiſonous metal. The longer the cyder ſtands, if properly kept, it becomes the more mellow, *i. e.* it depoſits its tartarous acid; and the poiſon will conſequently in part be precipitated along with it,

Page 14. Mr. WORTH is introduced, declaring, that "*he never knew any lead uſed in any of the pounds, and yet that his tenants, and neighbours, are more univerſally afflicted with the colic, than any other people in other parts of the county.*" This is indeed a very general aſſertion; but it is not probable, that a gentleman ſhould have inquired into the ſtate of the pounds, or into the ſtate of the diſeaſe in the various parts of a large county, with ſufficient accuracy, to enable him to give an evidence on this ſubject, which can in any degree be deciſive. As to Mr. WARD's two men; had they drank 22 *gallons* of cyder inſtead of 22 *quarts*, adulterated with lead, without being hurt, ſuch an obſervation would by no means prove, that a ſolution of lead

may in general be drunk with impunity. It is well known that a very ſmall quantity will in particular conſtitutions do great and irreparable miſchief, and that in other conſtitutions, a large doſe will do no injury. Beſides, it is a known fact, that ſome deadly poiſons taken in too large a doſe, will, by overacting their parts, even elude their own powers.

Page 15. "*Not one pound in fifty contains any lead at all.*" Mr. GEACH, conſcious that this is much too bold an aſſertion, or in other words abſolutely falſe, qualifies it with, "*or not of any conſequence. All the apples are compreſſed in wooden pounds, or ground in iron or wooden mills.*" If all the apples are thus compreſſed and ground, it is I imagine to be preſumed, that the Moorſtone troughs, "*in which a little lead is ſometimes uſed,*" are never employed. To what ſhifts and contradictions is a man driven, who knows not, how to ſuppreſs truth with dexterity!

"*It cannot I believe be proved, that ſheet-lead is nailed over any preſs in any part of Devon, that at Alphington excepted.*" What will this Author ſay, if I reply, it can be proved, that in the

the year 1766, there were many ſuch preſſes, in ſeveral parts of the county. It can be proved by a certificate, which you have ſhown me, that in three pariſhes only, there were at leaſt thirty preſſes lined with lead. *This is no hearſay or random aſſertion.*

Page 16. "*The cramps faſtened with lead, are ſeldom in the groove, where the apples are ground.*" For *ſeldom* read *always*. And this Mr. ALCOCK does not deny, but only attempts to be jocular on the ſubject.

"*Did corroſive vinegar inſtead of cyder flow from the pounds, could it poſſibly extract the ill qualities of the lead as it runs?*" In page 27 of your Eſſay, Mr. GEACH will find this quotation anſwered by Dr. WALL, who ſays, that he has lately had two or three patients in that diſtemper, occaſioned by their having drank cyder made in a preſs covered over with lead. Beſides, the circumſtance to which he refers, of freſh ſurfaces of cyder, being ſo repeatedly applied; that, and the agitation of the muſt, during its running off, will neceſſarily facilitate and promote the ſolution of the lead.

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As to the quantity of lead uſed in the pounds, that is different in different places; and it depends very much on accident.

According to Mr. GEACH, "*the original quantity firſt uſed does not exceed four or five pounds*;" according to Mr. ALCOCK, "*two or three pounds are the quantity firſt uſed*;" but according to other authorities, ten, nay twenty pounds are employed. An argument founded on principles ſo vague, cannot but be fallacious and inconcluſive.

Anſwer to Q. 1. It may be allowed that there is a poſſibility that ſome of the many patients ſaid to have been received into the hoſpital at Exeter, may have drunk cyder made in pounds in which there is no lead; this I ſay may be allowed; and yet perhaps, it may hereafter appear probable likewiſe, that the cyder which they drunk was impregnated with lead.

Anſwer to Q. 2. Dr. HUXHAM's opinion is, that the Devonſhire colic and the colic of the Weſt Indies ariſe from *ſimilar cauſes*, the firſt from acid cyder, and the latter from too great a uſe of the very acid juice of lemons.

And I would adviſe Mr. GEACH, if he would experimentally prove his own reaſoning, to try the effects of cyder *taken occaſionally, and in ſmall quantities, for the cure of the gripes.* As to the bile, if it be true, that at Plymouth, when putrid, it becomes an *acrimonious corroſive ſanies*, he may try the experiment on it, even with greater advantage at Plymouth than in the Weſt Indies, where I believe its *ſanies* was never quite ſo corroſive.

Anſwer to Q. 3. With reſpect to Mr. ROWE the rope-maker, who Mr. GEACH roundly ſays "*never drank any cyder*," I muſt here ſuſpend my belief. But I will admit that Mr. ROWE prefers white ale to cyder. No judgment however can be formed with regard to the poſitive effects of that liquor, till Mr. GEACH ſhall diſcover the ſecret of making white ale. That the compoſition is kept a ſecret, he will not deny. That if it occaſions this identical colic, it does not occaſion it by being in the act of fermentation, appears probable from the experience of the inhabitants of Scotland, who drink large quantities of a ſmall beer while fermenting, without being affected with the colic of Poitou.

Anſwer

Anſwer to Q. 4. The experiments made on the cyder which flowed from the leaden pipes at Alphington, were very fair; however, they were by no means confined to ſuch cyder; and almoſt all the varieties of Devonſhire cyder, which you could procure, exhibited more or leſs the appearance of lead on the addition of the teſt. That the muſt when brought to London was not black, I can teſtify; nor was any ſpecimen of cyder, on which you tried your experiments, of any but the common colour.

Anſwer to Q. 5. which runs thus; "*How comes it to paſs that cyder, ſome thouſand hogſheads of which are ſent every year to London, does not produce the colic among the inhabitants there?*" Though much cyder be brought to London, it is very far from being the common drink of the inhabitants. And if we even ſuppoſe, that when it was exported from Devon, it all had a Saturnine impregnation, it would, by being kept, every day become leſs and leſs poiſonous; and at laſt a more wholeſome liquor. But in fact phyſicians find, that the colic of Poitou is not an uncommon diſorder in London; and it is more than probable that the

the Devonſhire cyder, whether unmixed with other liquors, or as it enters a compoſition, which is drunk for wine, may contribute towards making the diſeaſe ſo common as it is.

But now follows Mr. MORE's two letters, which, according to Mr. GEACH, prove that all the experiments depended upon a blunder. But how far theſe letters prove what Dr. HUXHAM and Mr. GEACH intend by the publication of them, I ſhall leave to the intelligent reader. I muſt however obſerve, that the following part of Mr. MORE's firſt letter is ſuppreſſed; "As it doth not appear by any thing mentioned in the Pamphlet, that the reſt of the experiments were made on cyder different from that made uſe of in this experiment, it is not at all ſtrange, that evident marks of its containing lead ſhould appear, the whole queſtion being, whether it became impregnated with metal in the bottles, or in the mill, or preſs, at the time of making." You informed me that a paſſage in *your Eſſay*, page 44, was pointed out to Mr. MORE, in which it is ſaid, "*The ſame experiments were afterwards tried on ſeveral other ſpecimens of*

Devonſhire and Herefordſhire cyder. The reſult of them was conſtantly and uniformly the ſame as has been deſcribed." Mr. MORE was likewiſe informed, that the experiments had been frequently made on cyder, taken from the caſk, as well as bottled cyder. Why this part of Mr. MORE's letter was ſuppreſſed, will be obvious to every one, who has been in the leaſt converſant with that ſpecies of fallacy, in which, it muſt be confeſſed, Mr. GEACH has made a very contemptible figure.

About the month of October laſt, I received from you 18 quarts of cyder, from which I was to prepare an extract, and make an aſſay, not doubting but that the quantity of lead detected by you, in your former experiments, might be ſtill rendered more ſenſible. I evaporated the liquor in a ſtone veſſel, to the conſiſtence of an extract, and was ſomewhat ſurpriſed to find in the extract a ſmall quantity of malleable lead; this I immediately ſuſpected might ariſe from ſhot in the bottles; of this ſuſpicion you had the earlieſt intelligence. I picked out all the lead carefully; and my own private aſſaying furnace not being in order, I carried it to be aſſayed at a

place

place where I met with Mr. More: I told what I was engaged in, and immediately hinted to him my ſuſpicion regarding the accuracy of that experiment, and ſuggeſted the propriety, and urged the neceſſity of repeating it: however I proceeded in the aſſay, although I meant to lay no ſtreſs on it; this he knew perfectly well, as I told him, I would ſet about making another extract immediately: the reſult of the aſſay of which is what is referred to in your fifth experiment.

It may be perhaps of ſome ſervice to Mr. More, if I publickly acknowledge that he uſed many arguments, to diſſuade me from purſuing ſuch an enquiry; and refuſed either to encourage, or even be witneſs to any experiments, which might end in diſcoveries in any way diſagreeable to his very good friends of the county of Devon.

If the public, however, ſhould ſtill heſitate about the validity of this laſt aſſay, as being from bottled cyder, their doubts will be removed, when your papers are publiſhed, in which they will ſee, that an aſſay has been made, under the eye of ſeveral gentlemen of

candor and veracity, from cyder taken immediately from the caſk, by which a quantity of malleable lead was obtained.

Mr. ALCOCK's remarks, are rather more ſenſibly written than the obſervations of Mr. GEACH; and I think they really deſerve to have taken place of the other performance; and why Mr. GEACH, who aſks permiſſion to *prefix* them to his work, places them in the rear, except from a ſenſe of his own ſuperiority, I cannot conjecture. But theſe remarks are, according to Mr. ALCOCK, only *curſory*; and verily a man who runs may anſwer them.

The firſt remark has already been conſidered in part. But I will inform this Reverend Author, that in medical matters, we pay adulation to no *ipſe dixit*; nor do we allow that the authority of any man whatever, can ſtamp infallibility on opinions which are not eſtabliſhed by experiment.

Remark 2. The gentleman is diſpoſed to make himſelf merry on the ſubject of iron cramps. What is ſaid of the Herefordſhire troughs, ſtands on the authority of Dr. WALL,

of Worceſter, a gentleman whoſe learning and accuracy are well known. No other anſwer is neceſſary.

Remark 3. Alphington being a place famous for making good cyder, and being ſo very near to Exeter, it was moſt obvious to try your experiments on the cyder of that pariſh; but trials were made from various other ſpecimens; and if even in London, various ſpecimens of cyder, agreed in ſhowing marks of a Saturnine ſolution, the fairneſs of a general concluſion muſt be allowed.

He now finds himſelf under the neceſſity of ſaying, that "*Perhaps all the difference of colour might be owing to a greater degree of acidity, in the Devonſhire, than in the Herefordſhire cyder.*" This ſuppoſition is ſtill in your favour; for the more acid there is in the cyder, the lighter the colour of the precipitate would be. But let me refer Mr. ALCOCK to page 27, where he will find it to be allowed by one whom Mr. GEACH calls a *chemiſt*, that the dark precipitation, occaſioned by the *liquor probatorius*, is an undoubted proof of the preſence of lead.

Remark

Remark 4. "*I always thought that putty had been made of white lead, oil, and whiting.*" Whatever this gentleman's thoughts may have been, he may be aſſured that the farmers in Worceſterſhire, put no white lead into their putty. But let me adviſe him to conſult Chambers's Dictionary, and he will there find, contrary to what he always thought, that putty, in its popular ſenſe, denotes a cineritious kind of paſte, compounded of whiting and linſeed oil, beaten together to the conſiſtence of a tough dough. Mr. ALCOCK, I imagine, will require no farther ſolution of this difficulty. However, ſuppoſing there had been white lead in the compoſition of this putty, I will inform Mr. ALCOCK, that the cyder could not have touched it, while it had chalk or whiting in the compoſition to act upon.

Remark 4. You never ſaid that cyder was in the condition of *ſacharum ſaturni*, but that lead diſſolved in cyder was in that ſtate; and this is certainly as you repreſent it. But I am utterly at a loſs to gueſs how Mr. ALCOCK can ſpeak with ſuch abſolute certainty, of the quantity of lead uſed in pounds, which were made

made ſeventy or eighty years ago, or how he can determine that not a ſingle pound of lead has been conſumed in ſuch a number of years. Did he weigh the exact quantity ſeventy or eighty years ago? And has he lately weighed the remainder?

Remark 6. This is an inſignificant remark, on a quotation from a French author. Let the gentleman however enquire at the exciſe office; and he will there be informed, that thoſe whoſe buſineſs it is to handle the tea, which is always imported in lead, are very apt to become paralytic in their arms and hands.

Remark 7. All this reaſoning is abſolutely inconcluſive, as will appear to any one, who will conſider the different effects of all the nervous poiſons on different conſtitutions. And let me aſk Mr. ALCOCK, upon what other principle he conceives it to depend, that according to the argument of his friend Mr. GEACH, not one in a thouſand (of thoſe I preſume who drink cyder) has the endemial colic, page 18.

The

The tartar, according to Mr. ALCOCK, in a moderate quantity is ſalutary, in exceſs deleterious. What! does the very ſame ſubſtance taken in large quantities, bring on thoſe very effects, which when taken in ſmall quantities it remedies. In my turn, *I ſhould be glad of a ſolution of this.*

As to the vague reaſoning concerning the moiſture of the Devonſhire atmoſphere, it ſeems to deſerve no conſideration. Upon the whole, I believe it will appear to all impartial and diſintereſted readers, *that you have overthrown the hypotheſis of others*, and that *your own opinion muſt ſtand*, having a ſolid foundation in truth.

SIR,

I am your moſt humble

and obedient Servant,

London,
Nov. 4. 1767.

WILLIAM SAUNDERS.